

CLAIMS

1. An electromagnetic damper control device for an electromagnetic damper, the damper comprising a first member containing a magnet, and a second member containing a solenoid, wherein a relative rotation of the first member and the second member generates an electromagnetic force in the solenoid which acts as a damping force to the relative rotation, the device comprising:

a current limiter element which operates based on the electrical voltage generated in the solenoid due to the relative rotation of the first member and the second member, the current limiter element limiting a current flowing through the solenoid to a predetermined current determined depending on a voltage generated in the solenoid.

2. The electromagnetic damper control device as defined in claim 1, wherein the device comprises a plurality of current limiter circuits each of which comprises the current limiter element, and the limiter circuits are connected in parallel and configured to operate at different voltages to limit the current flowing through the solenoid to the predetermined current.

3. The electromagnetic damper control device as defined in claim 1, further comprising a current limiter circuit comprising a fixed voltage element generating a fixed voltage and the current limiter element which limits the electrical current flowing through the solenoid to the predetermined current, wherein the fixed voltage generated by the fixed voltage element is applied to the

current limiter element so as to limit the current flowing through the solenoid to the predetermined current, when the electrical voltage generated in the solenoid has reached a predetermined voltage.

4. The electromagnetic damper control device as defined in claim 3, wherein the current limiter circuit further comprises a setting circuit which sets the fixed voltage generated by the fixed voltage element.

5. The electromagnetic damper control device as defined in claim 3, wherein the fixed voltage element comprises a shunt regulator and the current limiter element comprises a field effect transistor, wherein the shunt regulator is configured to generate the fixed voltage when the electrical voltage generated in the solenoid has reached the predetermined voltage, and the field effect transistor is configured to control electrical current flowing between a source and a drain at a fixed current when the fixed voltage is applied to a gate of the field effect transistor.

6. The electromagnetic damper control device as defined in claim 5, wherein the shunt regulator comprises at least a first terminal connected to a high potential side and a second terminal connected to a low potential side and a reference voltage terminal to which a reference voltage for the operation of the shunt regulator, and the current limiter circuit further comprises a variable resistor element which is interposed between the reference voltage terminal and the first terminal or between the reference voltage terminal and the

second terminal and a setting circuit which sets the fixed voltage generated by the fixed voltage element.

7. The electromagnetic damper applied for Claim 1, comprising a motor comprising a stator as the first member and a rotor as the second member, a cylinder performing a linear movement, and a motion converting member comprising a rotating member screwed on the cylinder to convert the linear movement into a rotational movement, the rotating member fixed to any one of the rotor and the stator, and configured to generate a damping force using an electromagnetic force that acts between the rotor and the stator.

8. The electromagnetic damper applied for Claim 1, comprising a motor comprising a stator as the first member and a rotor as the second member, an arm member connected to one of the rotor and the stator, a fixed member connected to the other one of the rotor and the stator, and an auxiliary damper interposed between the arm member and the fixed member, and configured to cause any one of the rotor and the stator to rotate according to a swing motion of the arm member and generate a damping force using an electromagnetic force that acts on the motor.